

tion is in no way limited thereto. In an exemplary embodiment of the invention, a patch-sized fluid delivery device may be approximately 6.35 cm (~2.5 in) in length, approximately 3.8 cm (~1.5 in) in width, and approximately 1.9 cm (~0.75 in) in height, although, again, these dimensions are merely exemplary, and dimensions can vary widely for different embodiments.

[0513] While the principles of the invention have been described herein, it is to be understood by those skilled in the art that this description is made only by way of example and not as a limitation as to the scope of the invention. Other embodiments are contemplated within the scope of the present invention in addition to the exemplary embodiments shown and described herein. Modifications and substitutions by one of ordinary skill in the art are considered to be within the scope of the present invention.

1-13. (canceled)

14. A method for delivering an infusible fluid to a user, the method comprising:

providing housing with a reservoir of infusible fluid; a drive shaft and a shape-memory alloy actuator operatively connected to selectively move the drive shaft; and a pump device comprising: a housing provided with a barrel, a plunger located in the barrel and receiving a drive force from the drive shaft, an inlet extending to the barrel and configured for connection to the reservoir, an outlet in fluid flow communication with the barrel and configured for connection in fluid flow communication with an injection site;

securing the housing to a user;

energizing the shape memory alloy actuator wherein the drive shaft is moved;

moving the plunger to a fill position along a longitudinal axis of the barrel with the drive shaft, wherein fluid is allowed to flow through the inlet and into the barrel; obstructing the flow of the fluid through the inlet;

moving the plunger to a dispense position with the drive shaft, wherein the volume of the barrel is reduced to force fluid in the piston chamber out of the outlet;

injecting the infusible fluid into the user; and

disengaging the housing from the user.

15. The method according to claim 14, further comprising:

providing a one-way valve at the outlet; inhibiting fluid flow from the outlet to the barrel.

16. The method according to claim 14, further comprising:

providing a one way valve at the inlet, and inhibiting fluid flow from the barrel to the reservoir.

17. The method according to claim 14, further comprising:

providing an electrical control circuitry; and controlling the drive device with the control circuitry for delivery of the infusion medium from the reservoir to the user.

18. The method according to claim 14, further comprising:

providing an adhesive material on a bottom surface of the first housing portion; and

the step of securing the first housing to the user is placing the adhesive material in contact with the user.

19. The method according to claim 14, further comprising:

providing a cannula in fluid communication with the outlet; and

inserting the cannula in the user.

20. The method according to claim 14, further comprising:

providing a one way valve at the outlet, and inhibiting fluid flow from the barrel to the injection site.

21. The method according to claim 16, further comprising:

providing a one way valve at the outlet, and inhibiting fluid flow from the barrel to the injection site.

22. The method according to claim 21, further comprising:

providing a cannula in fluid communication with the outlet; and

inserting the cannula in the user.

23. The method according to claim 14, wherein the housing has a disposable housing portion adapted to be secured to a user; and a durable housing portion configured to be selectively engaged with and disengaged from the disposable housing portion, the method further comprising:

engaging the disposable housing to the durable housing; and

disengaging the disposable housing from the durable housing after the step of injecting the fluid into the user.

24. A method for delivering an infusible fluid to a user, the method comprising:

providing a first housing portion with a reservoir of infusible fluid;

providing a second housing portion having a drive shaft, a shape-memory alloy operatively connected to selectively move the drive shaft; and a pump device comprising: a housing provided with a barrel, a plunger located in the barrel and receiving a drive force from the drive shaft, an inlet extending to the barrel and configured for connection to the reservoir, an outlet in fluid flow communication with the barrel and configured for connection in fluid flow communication with an injection site;

engaging the first housing portion to the second housing portion;

securing the first housing portion to a user;

energizing the shape memory alloy actuator wherein the drive shaft is moved;

moving the plunger to a fill position along a longitudinal axis of the barrel with the drive shaft, wherein fluid is allowed to flow through the inlet and into the barrel;

obstructing the flow of the fluid through the inlet;

moving the plunger to a dispense position with the drive shaft, wherein the volume of the barrel is reduced to force fluid in the piston chamber out of the outlet; and

disengaging the first housing portion from the second housing portion.

25. The method according to claim 24, further comprising:

providing a one-way valve at the outlet; inhibiting fluid flow from the outlet to the barrel.

26. The method according to claim 24, further comprising:

providing a one way valve at the inlet, and inhibiting fluid flow from the barrel to the reservoir.